

VALOX™ 553 resin

Polycarbonate + PBT

SABIC Innovative Plastics

Message:

VALOX 553 is a 30% glass fibre reinforced, flame retardant PBT+PC blend with good warpage characteristics. Applications: appliance handles, spotlights, electric motors, pumphousings.

General Information			
UL YellowCard	E45329-236627		
Filler / Reinforcement	Glass fiber reinforced material, 30% filler by weight		
Additive	Flame retardancy		
Features	Low warpage		
	Flame retardancy		
Uses	Handle		
	Pump parts		
	Home appliance components		
RoHS Compliance	RoHS compliance		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.58	g/cm ³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (266°C/5.0 kg)	40	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR)			ISO 1133
250°C/2.16 kg	7.00	cm ³ /10min	ISO 1133
250°C/5.0 kg	20.0	cm ³ /10min	ISO 1133
265°C/5.0 kg	30.0	cm ³ /10min	ISO 1133
Molding Shrinkage			Internal method
Flow ¹	0.40 - 0.60	%	Internal method
Flow: 3.20mm	0.50	%	Internal method
Transverse flow ²	0.50 - 0.90	%	Internal method
Water Absorption			ISO 62
Saturated, 23°C	0.26	%	ISO 62
Equilibrium, 23°C, 50% RH	0.070	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	118		ISO 2039-2
Ball Indentation Hardness (H 358/30)	132	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ³	10700	MPa	ASTM D638

--	11000	MPa	ISO 527-2/1
Tensile Strength			
Yield ⁴	140	MPa	ASTM D638
Yield	135	MPa	ISO 527-2/5
Fracture ⁵	140	MPa	ASTM D638
Fracture	135	MPa	ISO 527-2/5
Tensile Elongation			
Yield ⁶	2.0	%	ASTM D638
Yield	2.0	%	ISO 527-2/5
Fracture ⁷	3.0	%	ASTM D638
Fracture	2.0	%	ISO 527-2/5
Flexural Modulus			
50.0mm span ⁸	9400	MPa	ASTM D790
-- ⁹	8300	MPa	ISO 178
Flexural Stress			
--	205	MPa	ISO 178
--	200	MPa	ISO 178
Yield, 50.0mm span ¹⁰	190	MPa	ASTM D790
Fracture, 50.0mm span ¹¹	190	MPa	ASTM D790
Flexural Strain at Break ¹²	3.0	%	ISO 178
Filler Content	30	%	ASTM D229
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			
-30°C ¹³	8.0	kJ/m ²	ISO 179/1eA
-30°C	11	kJ/m ²	ISO 179/2C
23°C ¹⁴	8.0	kJ/m ²	ISO 179/1eA
23°C	11	kJ/m ²	ISO 179/2C
Charpy Unnotched Impact Strength			
-30°C ¹⁵	No Break		ISO 179/1eU
-30°C	55	kJ/m ²	ISO 179/2U
23°C ¹⁶	No Break		ISO 179/1eU
23°C	60	kJ/m ²	ISO 179/2U
Notched Izod Impact			
-30°C	90	J/m	ASTM D256
0°C	95	J/m	ASTM D256
23°C	100	J/m	ASTM D256
-30°C ¹⁷	9.0	kJ/m ²	ISO 180/1A
0°C ¹⁸	10	kJ/m ²	ISO 180/1A
23°C ¹⁹	10	kJ/m ²	ISO 180/1A
23°C ²⁰	45	kJ/m ²	ISO 180/1C
Unnotched Izod Impact			
-30°C	770	J/m	ASTM D4812

23°C	770	J/m	ASTM D4812
-30°C ²¹	52	kJ/m ²	ISO 180/1U
23°C ²²	53	kJ/m ²	ISO 180/1U
Instrumented Dart Impact (23°C, Total Energy)	8.40	J	ASTM D3763
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, unannealed, 3.20mm	203	°C	ASTM D648
0.45 MPa, unannealed, 100 mm span ²³	205	°C	ISO 75-2/Be
0.45 MPa, unannealed, 64.0mm span ²⁴	202	°C	ISO 75-2/Bf
1.8 MPa, unannealed, 3.20mm	138	°C	ASTM D648
1.8 MPa, unannealed, 100 mm span ²⁵	135	°C	ISO 75-2/Ae
1.8 MPa, unannealed, 64.0mm span ²⁶	140	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	165	°C	ASTM D1525, ISO 306/B50 16 ²⁷
--	210	°C	ASTM D1525, ISO 306/A50 17 ²⁸
--	161	°C	ISO 306/B120
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
Linear thermal expansion coefficient			
Flow: -40 to 40°C	2.5E-5	cm/cm/°C	ASTM E831
Flow: -40 to 40°C	1.9E-5	cm/cm/°C	ISO 11359-2
Flow: 23 to 80°C	2.5E-5	cm/cm/°C	ISO 11359-2
Flow: 23 to 150°C	1.5E-5	cm/cm/°C	ISO 11359-2
Lateral: -40 to 40°C	5.8E-5	cm/cm/°C	ASTM E831
Lateral: -40 to 40°C	7.4E-5	cm/cm/°C	ISO 11359-2
Lateral: 23 to 80°C	8.5E-5	cm/cm/°C	ISO 11359-2
Horizontal: 23 to 150°C	1.2E-4	cm/cm/°C	ISO 11359-2
RTI Elec	125	°C	UL 746
RTI Imp	110	°C	UL 746
RTI	125	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093
Volume Resistivity	> 1.0E+15	ohms · cm	ASTM D257, IEC 60093
Dielectric Strength			
0.800 mm, in Oil	28	kV/mm	ASTM D149
1.60 mm, in Oil	24	kV/mm	ASTM D149
3.20 mm, in Oil	15	kV/mm	ASTM D149
0.800mm, in oil	28	kV/mm	IEC 60243-1
1.60mm, in oil	24	kV/mm	IEC 60243-1
3.20mm, in oil	15	kV/mm	IEC 60243-1
Relative Permittivity			IEC 60250

50 Hz	3.40		IEC 60250
60 Hz	3.40		IEC 60250
1 MHz	3.30		IEC 60250
Dissipation Factor			IEC 60250
50 Hz	1.0E-3		IEC 60250
60 Hz	1.0E-3		IEC 60250
1 MHz	7.0E-3		IEC 60250
2.45 GHz	0.020		IEC 60250
Arc Resistance ²⁹	PLC 6		ASTM D495
Comparative Tracking Index (CTI)	PLC 3		UL 746
Comparative Tracking Index			IEC 60112
--	225	V	IEC 60112
Solution B	125	V	IEC 60112
Needle Flame Test ³⁰ (1.50 mm)	Pass		IEC 60695-11-5
High Amp Arc Ignition (HAI)	PLC 3		UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 4		UL 746
Hot-wire Ignition (HWI)	PLC 1		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.860 mm	V-0		UL 94
2.30 mm	5VA		UL 94
Glow Wire Flammability Index (1.00 mm)	960	°C	IEC 60695-2-12
Oxygen Index	34	%	ISO 4589-2
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (260°C, 1500 sec ⁻¹)	200	Pa · s	ISO 11443
Injection	Nominal Value	Unit	
Drying Temperature	110 - 120	°C	
Drying Time	2.0 - 4.0	hr	
Suggested Max Moisture	0.020	%	
Hopper Temperature	40.0 - 60.0	°C	
Rear Temperature	230 - 245	°C	
Middle Temperature	240 - 255	°C	
Front Temperature	245 - 265	°C	
Nozzle Temperature	240 - 260	°C	
Processing (Melt) Temp	250 - 270	°C	
Mold Temperature	40.0 - 100	°C	
NOTE			
1.	Tensile Bar		
2.	Tensile Bar		
3.	5.0 mm/min		
4.	Type 1, 5.0 mm/min		
5.	Type 1, 5.0 mm/min		

6.	Type 1, 5.0 mm/min
7.	Type 1, 5.0 mm/min
8.	1.3 mm/min
9.	2.0 mm/min
10.	1.3 mm/min
11.	1.3 mm/min
12.	2 mm/min
13.	80*10*4 sp=62mm
14.	80*10*4 sp=62mm
15.	80*10*4 sp=62mm
16.	80*10*4 sp=62mm
17.	80*10*4
18.	80*10*4
19.	80*10*4
20.	Reverse impact, 80*10*4
21.	80*10*4
22.	80*10*4
23.	120*10*4 mm
24.	80*10*4 mm
25.	120*10*4 mm
26.	80*10*4 mm
27.	标准 B (120°C/h), 载荷2 (50N)
28.	速率 A (50°C/h), 载荷2 (50N)
29.	Tungsten electrode
30.	10 sec

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